the overuse of furosemide. In their cases, the authors highlighted the importance of a careful search for hidden diuretic abuse.[4] Uric acid is primarily excreted by the kidney, and certain drugs including diuretic agents can reduce the excretion of uric acid. No specific tests exist for a diagnosis of anorexia nervosa. Cultural issues, occupation, and body image are important factors in this condition.[5] In our case a dysmorphophobia led to inadequate nutrition and an excessive consumption of diuretics. With this case we would like to emphasise that in Western countries, where culture and body image play an important role in eating disorders,[6] the diagnosis of tophaceous gout in a young woman should require a psychological evaluation to exclude a medical history consistent with anorexia nervosa.

A colour version of fig 1 can be found at http://www.annrheumdis.com/supplemental

Authors' affiliations
C Garcia-Porrua, M A Gonzalez-Gay, Division of Rheumatology, Hospital Xeral-Calde, Lugo, Spain
C Canedo, Division of Psychiatry, Hospital Xeral-Calde, Lugo, Spain
R Argueso, Division of Endocrinology. Hospital Xeral-Calde, Lugo, Spain

Correspondence to: Dr C Garcia-Porrua, Rheumatology Division, Hospital Xeral-Calde, Lugo, c) Dr. Ochoa s/n 27004, Lugo, Spain; cgporrua@hotmail.com

Accepted 3 April 2005

REFERENCES

1 **Pascual E**, Pedraz T. Gout. *Curr Opin Rheumatol* 2004;**16**:282–6.
2 **Rott KT**, Agudelo CA. Gout. *JAMA* 2003;**289**:2857–60.
3 **Fam AG**, Assaad D. Intradermal urate tophi. *J Rheumatol* 1997;**24**:1126–31.
4 **Hayem G**, Delahousse M, Meyer O, Palazzo E, Chazerain P, Kahn MF. Female premenopausal tophaceous gout induced by long-term diuretic abuse. *J Rheumatol* 1996;**23**:2166–7.
5 **Dorian L**, Garfinkel PE. Culture and body image in Western society. *Eat Weight Disord* 2002;**7**:1–19.
6 **Fairburn CG**, Harrison PJ. Eating disorders. *Lancet* 2003;**361**:407–16.

Treatment of chronic plantar fasciitis with botulinum toxin A: an open case series with a 1 year follow up

R Placzek, G Deuretzbacher, F Buttgereit, A L Meiss

Ann Rheum Dis 2005;**64**:1659–1661. doi: 10.1136/ard.2005.035840

Plantar fasciitis, a special type of a soft tissue rheumatic syndrome, is a common painful condition which often becomes chronic. Its aetiopathology is not completely understood.[1] Being over weight and standing work are regarded as predisposing factors.[2] Microtrauma, nerve entrapment (Baxter's nerve), or limited ankle dorsiflexion are thought to be responsible.[3 4]

Most patients can be treated with physical therapy, local glucocorticoid injections, insoles, acupuncture, and extracorporeal shock wave therapy.[5 6] However, this treatment cannot improve the pain in all cases and can require a lot of time on the part of both patient and therapist. Surgery is controversial and should be restricted to patients who do not respond to conservative treatment.

It is not yet clear whether treatment of chronic plantar fasciitis with botulinum toxin A (Btx-A) works by causing muscle paresis or by analgesic/anti-inflammatory effects, or both. A combined effect may occur—namely, (*a*) induction of paresis of the muscles originating at the medial calcaneal process and (*b*) occurrence of direct analgesia owing to its anti-nociceptive and anti-inflammatory properties.[7–10]

In this pilot study here the effect of a single injection of Btx-A was studied in an open case series.

Nine patients with chronic plantar fasciitis (five women, four men, mean (SD) age 55 (9.5) years) were treated with Btx-A. The average disease period was 14 months (range 2–36). Patients were selected according to the inclusion and exclusion criteria of an already planned multicentre study (table 1).

Btx-A (500 units; Dysport, IPSEN Pharma, Ettlingen, Germany) was dissolved in 5.0 ml injection solution (0.9% saline), and 2.0 ml (200 units) were injected subfascially in four different directions through one injection puncture into the painful area at the origin of the plantar fascia. The procedure was always performed by the first author.

The following measurements were recorded at weeks 2, 6, 10, 14, 26, 39, and 52:

- Greatest pain during the past 48 hours using a visual analogue scale (VAS), 0–10
- Pain at rest during the past 48 hours using a VAS, 0–10
- Measurement of muscle force using Brunner's method, scale 0–5, for
  - Extension and flexion of the great toe
  - Extension and flexion of the foot
  - Pronation and supination of the foot
- Pain progression stage using Gerbershagen's score (Mainz Pain Staging System) at first visit (injection) and final examination (week 52).

Statistical analysis was performed using Wilcoxon's test.

Two weeks after injection a pronounced and statistically significant reduction of pain at rest during the past 48 hours was observed using a VAS (fig 1). The maximum pain during the past 48 hours was reduced to the same extent ($p<0.015$).

The recorded Mainz Pain Staging System (1–3) at injection and at week 52 showed a decrease from an average stage of 1.56 to 1.00. It is certainly not a specific tool for staging chronicity in plantar fasciitis, but we aimed at making a general statement on the course of the disease. Undesirable effects such as muscle weakness or systemic reactions were not seen. Our patients were satisfied not only by the pain

Table 1 Main inclusion and exclusion criteria of a planned multicentre study which were relevant for the selection of our nine patients

Inclusion criteria
- Written informed consent to participate in the study
- Age: at least 18 years
- Chronic plantar fasciitis (duration of the disease at least 4 months*)
- At least two unsuccessful conservative treatments
- At least four points on a VAS (0–10) for maximum pain during the past 48 hours
- On physical examination no evidence of other musculoskeletal diseases
- Diagnostic imaging within the previous 6 months (plain radiography, CT, MRI)
- No treatment with aminoglycoside antibiotics during the first 3 months of follow up

Exclusion criteria
- Participation in a clinical trial within the past 3 months
- Simultaneous participation in another clinical trial
- Prior treatment with Btx-A (that is only de novo patients)
- Surgical pretreatment in the affected area of the foot
- Known allergy or antibodies to Btx-A
- Presence of a rheumatoid disease
- Known muscle diseases or disturbance of neuromuscular transmission
- Treatment with coumarin or hereditary disturbance of coagulation
- Pregnancy or lactation
- Women of childbearing age without adequate contraceptive protection
- Serious accompanying diseases, particularly of the heart, liver, kidneys, and systemic diseases
- Abuse of alcohol or drugs
- Concomitant prohibited drugs (particularly drugs for pain)
- Concomitant prohibited treatment: local injections in the 2 weeks before and during the study
- Depression (also ingestion of antidepressants)
- Current inability to work having lasted for more than 3 months owing to plantar fasciitis
- Current compensation claims because of plantar fasciitis
- Current application for a pension or desire for a pension

*In one patient a duration of the disease of only 2 months was accepted.
VAS, visual analogue scale; CT, computed tomography; MRI, magnetic resonance imaging.

relief but also that only one injection was needed. The treatment is cost effective compared with repeated physical treatment, acupuncture, or extracorporeal shock wave therapy.

Our results thus suggest that a single injection of 200 units Btx-A (Dysport) may be a possible treatment for patients with chronic plantar fasciitis. This level IV study may yield the database for a power analysis of a double blind, placebo controlled multicentre study (in preparation).

Authors' affiliations
R Placzek, F Buttgereit, Charité University Medicine, Berlin, Germany
G Deuretzbacher, A L Meiss, University Hospital, Hamburg-Eppendorf, Germany

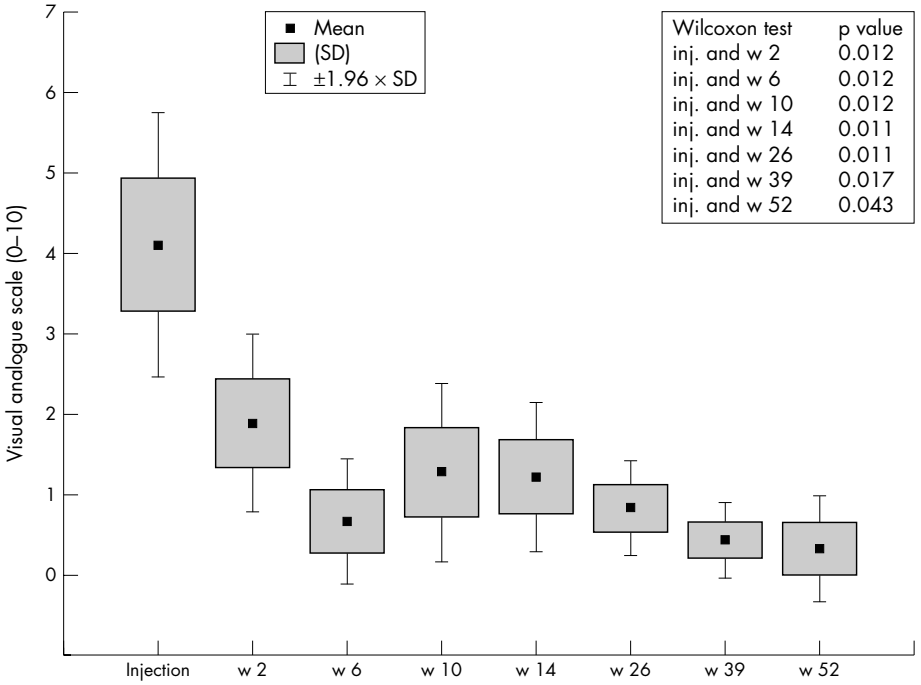

Figure 1 Pain at rest during the previous 48 hours on a VAS, 0–10. The significance level (p value) is shown in the table (top right).

Correspondence to: Dr R Placzek, Centrum für Muskuloskeletale Chirurgie, Charité Universitätsmedizin, Berlin, Campus Virchow-Klinikum, Augustenburger Platz 1, 13353 Berlin, Germany; richard.placzek@charite.de

Accepted 3 April 2005

REFERENCES

1 **Schepsis AA**, Leach RE, Gorzyca J. Plantar fasciitis. Etiology, treatment, surgical results, and review of the literature. *Clin Orthop* 1991;**266**:185–96.
2 **Hill JJ Jr**, Cutting PJ. Heel pain and body weight. *Foot Ankle* 1989;**9**:254–6.
3 **Baxter DE**, Thigpen CM. Heel pain–operative results. *Foot Ankle* 1984;**5**:16–25.
4 **Riddle DL**, Pulisic M, Pidcoe P, Johnson RE. Risk factors for plantar fasciitis: a matched case-control study. *J Bone Joint Surg Am* 2003;**85**:872–7.
5 **Gill LH**, Kiebzak GM. Outcome of nonsurgical treatment for plantar fasciitis. *Foot Ankle Int* 1996;**17**:527–32.
6 **Ogden JA**, Alvarez RG, Levitt RL, Johnson JE, Marlow ME. Electrohydraulic high-energy shock-wave treatment for chronic plantar fasciitis. *J Bone Joint Surg Am* 2004;**86**:2216–28.
7 **Chalkiadaki A**, Rohr UP, Hefter H. [Early pain reduction in the treatment of spasticity after a single injection of botulinum A toxin]. *Dtsch Med Wochenschr* 2001;**126**:1361–4.
8 **Gobel H**, Jost WH. [Botulinum toxin in specific pain therapy]. *Schmerz* 2003;**17**:149–65.
9 **Kelm S**, Gerats G, Chalkiadaki A, Hefter H. [Reduction of pain and muscle spasms by botulinum toxin A]. *Nervenarzt* 2001;**72**:302–6.
10 **Cui M**, Khanijou S, Rubino J, Aoki KR. Subcutaneous administration of botulinum toxin A reduces formalin-induced pain. *Pain* 2004;**107**:125–33.

Bilateral hydropneumothoraces in a patient with pulmonary rheumatoid nodules during treatment with methotrexate

N Steeghs, T W J Huizinga, H Dik

Ann Rheum Dis 2005;**64**:1661–1662. doi: 10.1136/ard.2004.032011

Extra-articular manifestations in rheumatoid arthritis (RA), in particular rheumatoid nodules, are common. The most common pulmonary manifestations are pleural abnormalities and interstitial lung disease.[1] Nodules observed on a chest *x* ray examination are a well known diagnostic dilemma in patients with RA, given the differential diagnosis of malignancy and rheumatoid nodules. Spontaneous pneumothorax secondary to pulmonary rheumatoid nodules is an uncommon complication of RA.[2 3]

A 73 year old female patient was admitted for cough, fever, and dyspnoea. She had had seropositive RA for 15 years, and had a history of chronic bronchitis, heart failure, diabetes mellitus, and hypothyroidism. She had been treated for 1 year with prednisone 7.5 mg/day and methotrexate (MTX), for active arthritis. The MTX dose was raised to 12.5 mg/week a month before presentation.

On admission, the patient was dyspnoeic and had a temperature of 39.3℃. She had clinical features of a right sided pneumothorax and destructive joint disease. No evidence of active arthritis or subcutaneous rheumatoid nodules was seen. The erythrocyte sedimentation rate was 73 mm/1st h and the white blood cell count 20.3×10^9/l. A chest *x* ray examination demonstrated a hydropneumothorax of the right lung.

Drainage by a chest tube produced chylous fluid and air leakage. Antibiotic treatment was started and the temperature normalised. Microbiological cultures and extensive examinations to locate an infection were all negative. A computed tomographic scan (CT scan) showed bilateral hydropneumothoraces with subpleural nodes and thickened pleura visceralis on the right side (fig 1). Ten days after admission the MTX was discontinued and steroid treatment was increased (30 mg/day) to control extra-articular disease (the nodulosis). The bilateral hydropneumothorax persisted. A week later a vigorous subcutaneous emphysema developed. A larger diameter chest tube was placed in the right pleural space. Continuing air leakage persisted. Thoracotomy was considered not to be an option in her condition. Ulcers and necrosis of the foot necessitated partial amputation of her right foot. Secondary infections occurred. Two months after admission the patient died.

Postmortem analysis showed bilateral hydropneumothoraces, with multiple subpleural nodules on both sides. The largest nodule, 2 cm, was located in the right lower lobe and had disrupted the pleura visceralis at that place.

The causes of pleural effusion are various, but combination with a pneumothorax narrows the differential diagnosis. In patients with RA who develop bilateral hydropneumothoraces, extra-articular disease (for example, rheumatoid nodules) should be considered as the cause.

Pleural effusions develop as an inflammatory response to the presence of subpleural nodules. Pneumothoraces occur as a result of cavitation of necrobiotic nodules that rupture to the pleural space, as in our patient, and are rare complications of RA.[3] The incidence of pulmonary nodules is <1% on chest *x* ray examination, and about 25% on high resolution CT scan.[1] They are associated, in most cases, with long-standing seropositive RA, the male sex, and subcutaneous rheumatoid nodules.

Previous reports suggest that MTX might be involved in exacerbating extra-articular manifestations of RA.[4] These

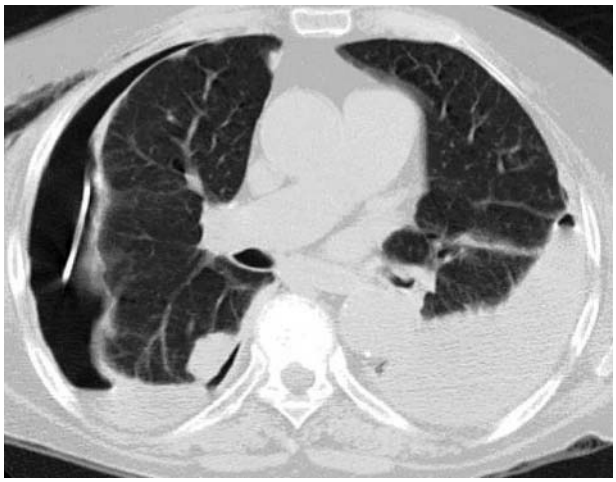

Figure 1 Thoracic CT scan showing bilateral pneumothoraces and pleural effusions. A large pulmonary rheumatoid nodule is located in the right lower lobe. A chest tube is placed in the right pleural space. The visceral pleural membrane is markedly thickened.